

H₂O ops

BE PREPARED: THE EMERGENCY ISSUE

MARCH 2016

P2 Earthquake Preparedness

SPU is doing some remarkable work preparing for "The Big One"

P3 The 2015 Drought

What are the lessons? Are you ready for what lies ahead?

P5 RTCR: Are You Ready?

The revised Coliform Rule goes into effect April 1. Here's a quick review.

DIRECTOR'S NOTE

Two years ago, I was given the opportunity to come back to the ODW to support you and the communities you serve. In January, the secretary offered me an appointment to serve as the next assistant secretary for Environmental Public Health.

I love our people and their talents, and our willingness to embrace the challenges before us. From ODW staff to operators, from small homeowners associations to the City of Seattle, across industries, state agencies, public utility and water districts, **we** are truly a statewide team working toward one goal: safe and reliable drinking water!

I am proud of what we've achieved. We responded together to emergencies caused by drought, fires, wind and ice storms. We expanded an amazing loan program to include preconstruction and emergency grants and loans, and planned a sustainable and more efficient program housed entirely at DOH. We identified the infrastructure needs of systems across the state so we can better compete for limited federal dollars. While this is not a complete list, it reflects the quality of your work serving the citizens of Washington.

While programs across the country are challenged and questioned, you are being thanked for your amazing work! I am honored to continue supporting your work in my new role, and I believe the statewide drinking water team has its best days ahead.



HALVORSON APPOINTED TO LEAD EPH DIVISION

NEW ODW DIRECTOR TO BE ANNOUNCED IN APRIL

On March 1, Office of Drinking Water (ODW) Director Clark Halvorson replaced Maryanne Guichard as assistant secretary for Environmental Public Health (EPH). Guichard retired after more than 35 years of public service.

Halvorson was chosen from a very competitive field of applicants. "In my 20+ years of leading teams, this was one of the hardest decisions for me given the quality of the candidates," said Dennis Worsham, deputy secretary of health for Public Health Operations, who led the hiring committee.

Halvorson returned to ODW in 2013, after serving as water resources director for the City of Olympia. He previously served as the interim director of the Office of Radiation Protection, the deputy director of ODW, and as the manager of our Southwest Regional Office. Halvorson also filled various environmental public health roles with tribal nations for almost 15 years.

"I could not be more excited and honored to have this amazing opportunity," Halvorson said in a memo to ODW staff. "I know how lucky I am to be part of such a great team."

The national search for a new director of ODW began in late January. Kim Zabel, deputy assistant secretary of EPH, is leading the search committee and expects to announce the new director by April 1. ♦



AND THE HIGH 5 GOES TO... WAWARN!

This issue's High 5 Award recognizes the contributions of all 87 member utilities of the Washington Water/Wastewater Agency Response Network. These utilities have stepped up to the plate to help not only their neighbors but their own customers in the event of an emergency.

Joining WAWARN allows these utilities to aid each other in the event of an emergency, even without a formal disaster declaration. And because this is an agreement among utilities and *not* a state government program, WAWARN is managed by the utilities; even privately owned utilities are eligible. By being willing to share resources—from 24" valves to 24 years worth of experience—these utilities are saving money, time, and trouble, and will be there for their customers and each other when the need arises. Thank you! ♦

WAWARN

UTILITIES HELPING UTILITIES

WARN (Water/Wastewater Agency Response Network) allows water and wastewater systems to receive rapid mutual aid and assistance from other systems during an emergency. Utilities sign the WARN standard agreement, which allows them to share resources with other Washington systems that have signed the agreement.

There is no cost to participate and it's voluntary. WAWARN increases emergency preparedness and coordination, and provides a single agreement to access resources statewide. The agreement contains provisions to protect participating utilities, and provides for cost reimbursement. Both private and public utilities may participate.

For more information, visit <http://www.wawarn.org/>. ♦

EARTHQUAKE PREPAREDNESS IN THE PUGET SOUND

BY BILL HEUBACH, WATER SYSTEM SEISMIC PROGRAM MANAGER, SPU

While the rest of the country may not think of Washington State when they think of earthquakes, we here in the Pacific Northwest know better. With a long history of earthquakes, including several magnitude 6.7+ earthquakes, we understand the earth can move beneath us at any moment. With that in mind, Seattle Public Utilities (SPU) is taking a comprehensive look at the seismic

vulnerability of its water system.

SPU completed a comprehensive seismic assessment in 1990. Several facilities were upgraded to make them earthquake-resistant. Since 1990, the understanding of seismicity in our region has improved dramatically, and we now know the possible ground-shaking intensity in the region is twice what we previously believed.

SPU continued to assess and improve the earthquake resistance of its facilities, and is now updating the 1990 assessment. SPU is working with stakeholders to develop post-earthquake level-of-service goals. These goals help SPU plan their upgrades and mitigation strategies. For instance, in past major earthquakes, other utilities experienced thousands of pipeline failures, often resulting in complete loss of water pressure. Restoration of service for some customers took 60 days or longer. SPU is evaluating strategies to mitigate the effects of extensive pipeline damage. Additionally, along with seismic upgrades of existing facilities, SPU is developing design standards for new pipelines. As pipelines are routinely replaced, the system will gradually become seismic-resistant.

By knowing and addressing their risks, SPU ensures that even in the face of disaster, the communities they serve will have safe, clean drinking water. If the unthinkable happens, SPU will prevent millions of dollars in damaged infrastructure, keep the system ready to fight post-earthquake fires, and enable a much quicker recovery for the region's economy. ♦

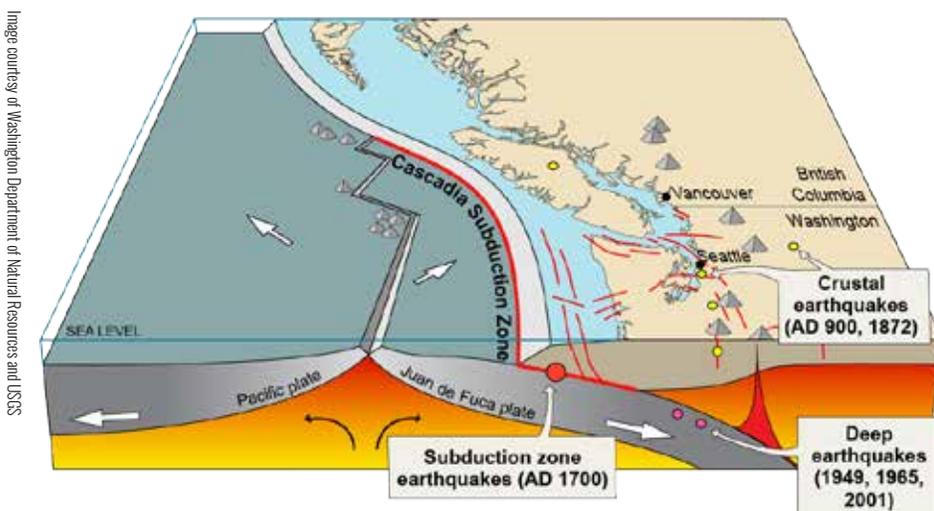


Image courtesy of Washington Department of Natural Resources and USGS



THE 2015 DROUGHT: WHAT HAPPENED AND WHAT ARE THE LESSONS?

RECORD HIGH TEMPERATURES AND LOW PRECIPITATION DEVASTATED WASHINGTON LAST YEAR. ARE YOU READY IF IT HAPPENS AGAIN?

BY GINNY STERN, ODW HYDROGEOLOGIST

Governor Inslee's 2015 drought emergency declaration officially expired December 31, 2015. What started as a warm wet winter, with abnormally low snowfall, turned into a record-setting, hot, dry and tenacious drought the likes of which we had not seen in many years. Over the spring and summer, the drought deepened, setting state records for lowest recorded snowpack, river flows, reservoir levels, and earliest melt off. May, June, and July set records for hot and dry weather. The effect on the water supply and demand was severe and broad, threatening fish, families, and farms across the state.

The drought continued until October when a series of large storms brought back the rains with a vengeance. Even

with warmer-than-normal temperatures, snow fell, rivers rose, and reservoirs filled. By the end of the year, the effects of drought eased across the state and the 2015 drought emergency declaration was allowed to quietly expire.

While conditions look good, the future is not as clear as it might seem. Temperatures this winter continue to be warmer than normal. The strong El Niño conditions in the Pacific suggest that the trend will continue into late spring. While a repeat of 2015 is unlikely, it is important to remember it only takes a few degrees to move the freezing levels up a few thousand feet and turn mountain snow to mountain rain.

A smart water system manager will take some time to review last year's oper-

ations: Which of your supplies are vulnerable? How do you know? Are you tracking water levels? What did the hot, dry weather and high customer demand do to your operations? What do your meter records show? How did 2015 compare to 2014? Did you see an increase in breakdowns and related costs last year? What were your water and operational costs last year? How do they compare to your base projections and previous years? How will you cope with rapid or unseasonable changes in demand? Do your customers understand where water use efficacy and conservation measures converge?

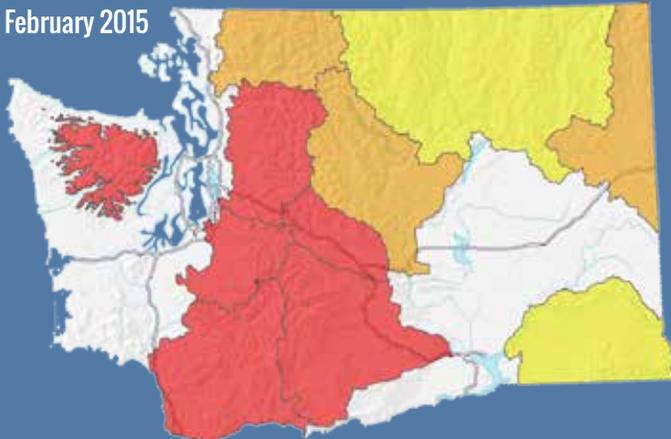
Winter is a great time to reflect and prepare for a busy summer. Did the 2015 drought catch you by surprise? If it did, what will you do differently in 2016? ♦

What a difference a year can make. Our wet and snowy winter was a relief, even if it played havoc with seasonal travel across the state. Comparing last year to this year is instructive. The maps present a snapshot of snowpack abundance, measured as a percent of normal. The metric, Snow Water Equivalent (SWE), reflects the amount of moisture stored in the snow. The values reflect average condition across the basins. Since snow is the state's third water reservoir (after surface water and groundwater), when conditions are nearly normal or better, the risk of drought fades. Therefore, an easy key to the maps is: red, yellow and orange - bad! Green and blue - good!

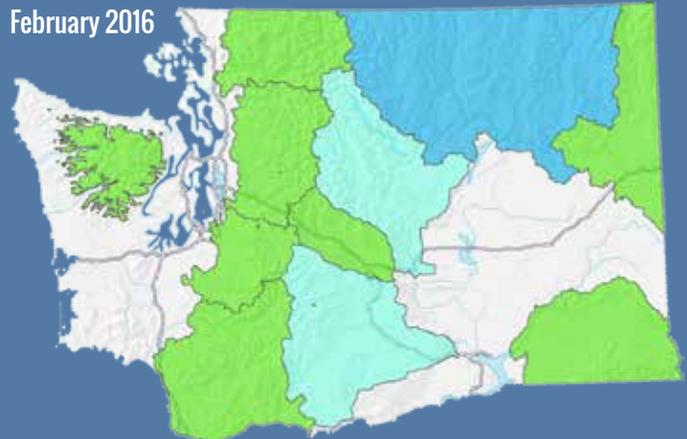
Snow Water Equivalent (SWE) as a Percent of Median

Median based on 1981-2008 measurements. Data and maps courtesy of NRCS.

February 2015



February 2016



<50%

90-110%

>150%



DON'T GET BURNED BY DOROTHY TIBBETTS, ERO

IN THE LAST TWO YEARS, 27 WATER SYSTEMS ISSUED HEALTH ADVISORIES DUE TO WILDFIRES.

In 2014, four separate lightning-caused fires in the Methow River Valley of Okanogan County merged to create the Carlton Complex Wildfire, covering more than 256,000 acres (about 400 square miles). More than 300 homes were lost and there were widespread power outages; communities were evacuated, roads were closed, and phone lines were down. Of the 45 public water systems in the affected area, 17 had to issue health advisories.

The following year, from June to September, more than 1 million acres (1,600 sq mi) burned across the state during the largest wildfire season in Washington's history. Ten water systems needed to issue health advisories.

Pressure loss, due to loss of power, caused most wildfire-related health advisories. Many systems learned from the 2014 experience and made sure their emergency response plan included access to a properly sized generator. During wildfires, water systems also commonly experience backflow events, high or unusual water demand, infrastructure damage, and treatment failures.

If your water system experiences a significant effect, you may need to issue a "Boil Water" or "Do Not Drink" advisory to your customers. You must issue a health advisory if your water system loses pressure or has other effects that might harm water quality and public health. The health advisory must remain in effect until water sample results confirm the water is safe to drink.

Be ready! Complete the DOH Emergency Response Planning Guide for Public Drinking Water Systems, which provides step-by-step guidance for developing your emergency response plan. And, consider joining WAWARN, a resource-sharing organization for public utilities (*see page 2*). Having an emergency plan in place ensures that in the event of a disaster, your focus is where it should be: fixing the problem instead of wondering what to do. ♦

FLOOD! WHAT TO DO, WHAT TO DO?

- Have enough coliform sample bottles on hand to sample each well and the distribution system daily for at least a week.
- If you routinely disinfect your water system with chlorine, increase the chlorine level. This will make it easier to monitor chlorine residuals in your water system. A drop in the chlorine residual may indicate contaminated water entered your water system.



EMERGENCY SAMPLING KIT

Quantities vary depending on the size of the water system.

- 120 ml coliform sample bottles
- Lab slips
- Pens
- Chlorine/pH test kit
- Insulated shipping container
- Ice packs
- 1 gallon sealable plastic bags (Ziploc™ or similar)
- Shipping Labels
- Chain of custody forms

PREPARE YOURSELF AND YOUR FAMILY!

As a water system owner or operator, your customers will depend on you to respond when disaster strikes your community. If you are well-prepared at home, you will have the peace of mind to focus on the task at hand, rather than worrying about whether your family is taken care of. First responders also serve as role models for other members of the community, leading by example to encourage preparedness.

1. Build an emergency supply kit.
2. Make a family emergency plan.
3. Be informed about the types of emergencies you may have to respond to, and teach your family about what they should do when a disaster strikes.
4. Prepare for any special considerations like individuals with access or functional needs, older adults, children, and pets.

This information is from Homeland Security's Ready.Gov website. For information and resources, visit ready.gov/responder. ♦



EMERGENCY LOANS

The Drinking Water State Revolving Fund Program offers loans for unforeseen events,

such as fires, floods, earthquakes, windstorms, or drought. Publicly and privately owned not-for-profit Group A community water systems, and noncommunity water systems owned by nonprofit organizations serving fewer than 10,000 people, are eligible to apply for up to **\$100,000, at 1.5 percent interest for a six-year term**. Based on the system's affordability index, an interest rate reduction to 1% or a subsidy may be available. ♦

COUNTDOWN TO RTCR: ARE YOU READY?

BY SANDY BRENTLINGER, SWRO

The Revised Total Coliform Rule (RTCR) goes into effect in a matter of days. Here's what's new. We dedicated the November *H₂Ops* to RTCR. If you need more information, check it out!

Coliform Monitoring

Sampling sites may now include a customer's premise, designated sampling station, or other compliance sampling station. You now have two options for choosing repeat sample sites:

1. Sample at the total coliform-present (TC+) routine sample site and sites within five active connections upstream and downstream.
2. Specify fixed alternative locations or criteria for selecting repeat sites by having a Standard Operating Procedure.

Repeat Samples

All systems collect three repeat samples for every TC+ routine sample. If you don't collect all three repeats after a TC+ routine sample it triggers a Level 1 Assessment, and after an *E. coli*-present (EC+) routine sample it triggers a Level 2 Assessment.

Level 1 and Level 2 Assessments

Level 1: A basic evaluation an owner, manager, or an informed person can do. Required when a system that collects fewer than 40 routine samples a month has two or more TC+ samples or a water system that collects 40 or more routine samples a month has more than five percent TC+.

Level 2: A complex evaluation only someone with required qualifications can do. Required when there is a second Level 1 Assessment in a rolling 12-month period or an *E. coli* MCL. Water systems must submit a report to us within 30 days after triggering the assessment requirement. The report must include any sanitary defects identified, those corrected, and an action plan with a timeline for correcting the rest.

The Groundwater Rule

A source sample must be raw water collected prior to treatment from any groundwater source in use when the TC+ routine sample was collected.

E. coli MCL

An *E. coli* MCL occurs when:

- A TC+ repeat sample follows a TC+EC+ routine sample.
- A TC+EC+ repeat sample follows a TC+ routine sample.
- The lab fails to test a TC+ repeat sample for *E. coli*.
- The water system fails to collect three repeat samples following an EC+ routine sample.

Seasonal Systems

A new type of noncommunity water system that shuts down for at least one month a year, depressurizes the water lines, and certifies that it followed a state-approved start-up procedure prior to providing water. ♡

IT'S START-UP TIME FOR SEASONAL SYSTEMS

BY MARK STEWARD, ERO

In Washington State, a seasonal system is a noncommunity system "that is not operated as a public water system on a year-round basis and starts up and shuts down at the beginning and end of each operating season." Examples include campgrounds, fairgrounds, ski areas and farmworker housing.

Starting April 1, seasonal systems must submit their start-up procedures to us before they open for the season. Each seasonal system is different, but most need to do the following as a bare minimum BEFORE SERVING WATER TO CUSTOMERS:

- Flush the well and all pipes.
- Clean all water storage tanks.
- Disinfect the well, pressure tanks, and distribution system.
- Inspect and repair any damage that may have occurred over the closed period.
- Collect a coliform sample and a nitrate sample.

Some systems will have to do more. Seasonal surface water systems must take many more steps before serving water to their customers. In addition, any water system that has treatment of any type must ensure it functions properly before serving water to customers.

Seasonal systems should direct questions about their start-up procedures to our regional engineer or coliform staff. ♡

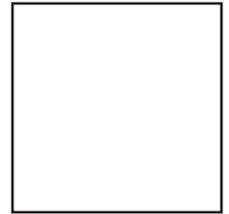


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For people with disabilities, this document is available on request in other formats. To submit a request, please call 1.800.525.0127 (TDD/TTY call 711).

Printed on recycled paper. ♻️

Image courtesy USGS



ARE YOU READY?

From broken water lines and bad sample results, to storms and other things that go bump in the night, this edition of *H₂Ops* focuses on the importance of being prepared. Our goal is to get you thinking about what could raise your blood pressure and ruin your day, then start planning ways to minimize the damage.

Could your water system be vulnerable to wildfire, drought, or flood? Would a power outage halt your operations? You can shorten your recovery time and minimize your expenses by signing a reciprocal agreement with nearby water systems. (*See the article about WAWARN, page 2.*)

Don't forget that nature doesn't cause all of our crises. Can you afford to replace your water tower? What would you do if your lead operator left? Could a rule change toss your system out of compliance?

We hope the stories, tips, and resources in this edition will minimize your grief and help you prepare for the worst-case scenario.